ARGONNE NATIONAL LABORATORY
WORK PROJECT AUTHORIZATION

TRANS. CODE	EFFECTIVE DATE	PROJECT CHARGE CODE NO.	COST CENTER	COST ELEMENT
A	12/1/02	03101	00 121	XXX

2.

CARD CODE	PROJECT TITLE (LIMIT TO 30 SPACES)	LOCATION BLDG.	LOCATION ROOM	START DESIGN	START CONSTRUCTION	COMPLETE	WPAS NO.	PROG. LETTER F/Y & NO.
KA	Tradeoff Studies for Recycle Economics			12/03	12/03			

3. BRIEF PHYSICAL DESCRIPTION AND SCOPE OF WORK

AFCI within DOE-NE is supporting the recycle of nuclear fuel to provide a positive impact on geological disposal and to provide a more proliferation resistant fuel cycle. The Generation IV Program also supports fuel recycle for the next generation of nuclear reactors for these same reasons and to increase the utilization of resources. The major impediment to the widespread deployment of fuel recycle is economics. Direct disposal of spent fuel is less costly than recycle using established technologies. Deployment of new technologies will have to be performed in a manner that makes economic sense in addition to meeting the earlier goals. Both pyrochemical and aqueous separation processes are being pursued as technologies to replace existing goals. The research performed under this LDRD will determine the key cost elements of recycle facilities, including both operating and capital costs. This information will then be the primary basis for assessing the impact of advanced technologies on total costs.

4.

CARD CODE	DIRECTION OF WORK C/CTR	DIRECTION OF WORK NAME	COST CONTROL C/CTR	COST CONTROL NAME	USER REPRESENTATIVE C/CTR	USER REPRESENTATIVE NAME	INTERNAL REQUEST AUTHORITY NAME	$	NAME	$
KC	121	Mike Goff	121	Jeff Shelton	121	H. F. McFarlane	H. F. McFarlane	Full	J. R. Shelton	Full

NOTE: THE DIVISION DIRECTOR IS AUTHORIZED TO APPROVE ANY REQUISITION WITHIN THE PROJECT LIMITS

5.

CARD CODE	TITLE OF PROGRAM ACTIVITY	% TO CODE	PROJECT DISTRIBUTION CODE	AMOUNT AUTHORIZED	AMOUNT AUTHORIZED	REV NO.
KE	– LDRD	100	95294-00-294-000	$150,000		

TYPE OF FUNDS: OPERATING COST, CONSTUCTION, INVENTORY — TYPE OF FUNDS: EQUIPMENT

CARD CODE	MASTER PROJECT CODES PRIMARY	SECONDARY	IDENT.	PROPERTY CONTROL C/CTR	PROPERTY CONTROL NAME
KD					

PURCHASE ORDERS AND SERVICE REQUESTS PREVIOUSLY ISSUED FOR THIS WORK: ☐ NONE ☐ LIST ATTACHED

7

CARD CODE	DOE PROJECT NO.	DOE DIRECTIVE NO.	DIRECT. MODIF. NO.	DIRECTIVE AMOUNT	IS DOE APPROVAL REQUIRED?
KF					☐ YES ☐ NO

ALD: J. I. Sackett — PM: R. G. Pahl

8. REMARKS

Proposal Number 03-196-NO

Title: Tradeoff Studies for Recycle Economics

OSTI Number: 210800

"The funding for this project has been reviewed and approved by the Laboratory Director. No commitment or expenditure may be made against this project in excess of this level without the Laboratory Director's approval."

"This project has been reviewed with respect to all applicable regulations under NEPA, human and animal subject research, and environmental health and safety."

K. M. Goff has $50,000 has internal request authority

J. R. Shelton has $25,000 has internal request authority

REVIEWED BY

INIT.	DATE	INIT.	DATE
DW	12/13		
[illegible]	12/13		

PROJECT AUTHORIZED BY [signature] AMOUNT 150,000

DISTRIBUTION

- DIVISION AUTHORIZED
- ACCOUNTING – COST SECTION
- ASSISTANCE CONTROLLER – ACCOUNTING
- CENTRAL SHOPS
- ELECTRONICS
- CONSTRUCTION PROJECT COORDINATOR
- OFFICE OF PUBLIC AFFAIRS
- ENVIRONMENT, SAFETY AND HEALTH
- PLANT SYSTEMS
- PROCUREMENT – 2
- PROPERTY MANAGEMENT
- QUALITY ASSURANCE
- SITE MANAGER'S OFFICE – AW
- SPECIAL MATERIALS & SERVICES
- BUDGET OFFICE – 3
- J. R. Shelton
- K. M. Goff
- S. P. Henslee
- H. F. McFarlane
- W. Deltrich
- D. J. Garziano
- R. W. Benedict
- B. J. Woelfer
- R. G. Pahl
- T. P. O'holleran
- K. L. Toews
- D. B. Chamberlain

REVISION LOG

NO.	DATE	TOTAL AUTHORIZED
Original	12/12/02	$150,000

ANL-48A (1-89)

WORK PROJECT REQUEST

9. Project Title: Tradeoff Studies for Recycle Economics

SUMMARY OF ESTIMATES

Effort	$ 145,000
M&S	$ 5,000
Total	$ 150,000

Cost Centers charging Effort

121
107

10. **JUSTIFICATION** (Explain program or service need, the inadequacy of present facilities, urgency and programmatic consequences if project is not authorized.)

Both the Advanced Fuel Cycle Initiative (AFCI) and the Generation IV Program within DOE-NE support recycle of spent nuclear fuel. New recycle technologies are being pursued to create more proliferation resistant processes and to produce fuels that can be used for the destruction of significant quantities of plutonium in existing spent fuel.

The major impediment to the widespread deployment of fuel recycle is economics. Direct disposal of spent fuel is less costly than recycle using established technologies. Deployment of new technologies will have to be performed in a manner that makes economic sense in addition to meeting the earlier goals. Research to determine the key cost elements for recycle and then assessments of the impacts of advanced technologies on these cost elements are needed.

The advanced nuclear fuel cycle initiative is expected to set the course for Argonne's nuclear energy program for the next decade. The deployment plans for a recycle facility would focus that work and provide direction for a national effort.

Continue on separate page(s) as necessary

11. **DIVISIONAL REVIEW AND APPROVAL**

	Signature	Date
1) Feasibility and/or Justification	Stephen G. Johnson for H. McFarlane	12/9/02
2) Adequacy of Budget	Jeff R. Thelbow	12/9/02
3) Division Director's Approval	Stephen G. Johnson for H. McFarlane	12/9/02

ANL-48A (11-82)

ARGONNE NATIONAL LABORATORY
WORK PROJECT AUTHORIZATION

TRANS. CODE	EFFECTIVE DATE	PROJECT CHARGE CODE NO.	SUB.	COST CENTER	COST ELEMENT
A	12/1/02	03102	00	121	XXX

CARD CODE	PROJECT TITLE (LIMIT TO 30 SPACES)	LOCATION BLDG.	LOCATION ROOM	START DESIGN	START CONSTRUCTION	COMPLETE	WPAS NO.	PROG. LETTER F/Y & NO.
KA	Strategic Analysis of Recycle Technologies				12/03			

3. BRIEF PHYSICAL DESCRIPTION AND SCOPE OF WORK

The National Energy Policy recommends development of advanced nuclear fuel cycles. This position was reinforced during the May 2002 summit meeting in Moscow in which the President announced that Russia and the U. S. would work together in developing an advanced proliferation-resistant nuclear fuel cycle. The objective of this LDRD is to establish a deployment plan for a nuclear fuel recycle facility. Work will assess the size of facility or facilities that should be deployed so that the inventory of commercial spent nuclear fuel can be treated so that the geological repository can benefit. The deployment time for the recycle facility will also be determined as will the ties to deployment of new reactors to burn transuranics.. Much of the general flowsheet work for both pyrochemical and aqueous processing has been established. Work will assess which technology or combination of technologies should be deployed to meet the goals of AFCI.

CARD CODE	DIRECTION OF WORK C/CTR	DIRECTION OF WORK NAME	COST CONTROL C/CTR	COST CONTROL NAME	USER REPRESENTATIVE C/CTR	USER REPRESENTATIVE NAME	INTERNAL REQUEST AUTHORITY NAME	$	NAME	$
KC	121	Mike Goff	121	Jeff Shelton	121	H. F. McFarlane	H. F. McFarlane	Full	J. R. Shelton	Full

NOTE: THE DIVISION DIRECTOR IS AUTHORIZED TO APPROVE ANY REQUISITION WITHIN THE PROJECT LIMITS

CARD CODE	TITLE OF PROGRAM ACTIVITY	% TO CODE		AMOUNT AUTHORIZED	AMOUNT AUTHORIZED	REV NO.
KE	LDRD		95294-00-294	$75,000		

TYPE OF FUNDS: OPERATING COST / CONSTUCTION / INVENTORY — EQUIPMENT

CARD CODE	MASTER PROJECT CODES PRIMARY	SECONDARY	IDENT.	ANALYSIS CATEGORY	PROPERTY CONTROL C/CTR	PROPERTY CONTROL NAME
KD						

PURCHASE ORDERS AND SERVICE REQUESTS PREVIOUSLY ISSUED FOR THIS WORK: ☐ NONE ☐ LIST ATTACHED

DOE PROJECT NO.	DOE DIRECTIVE NO.	DIRECT. MODIF. NO.	DIRECT. MODIF. DATE	DIRECTIVE AMOUNT	IS DOE APPROVAL REQUIRED? ☐ YES ☐ NO
					ALD: J. I. Sackett / PM: K. M. Goff

8. REMARKS

Proposal Number 03-330-NO

Title: Strategic Analysis of Recycle Technologies Deployment

OSTI Number: 210802

"The funding for this project has been reviewed and approved by the Laboratory Director. No commitment or expenditure may be made against this project in excess of this level without the Laboratory Director's approval."

"This project has been reviewed with respect to all applicable regulations under NEPA, human and animal subject research, and environmental health and safety."

K. M. Goff has $50,000 has internal request authority

J. R. Shelton has $25,000 has internal request authority

REVIEWED BY INIT. DATE

PROJECT

AUTHORIZED BY B Hagl AMOUNT $75,000

DISTRIBUTION

DIVISION AUTHORIZED
ACCOUNTING – COST SECTION
ASSISTANCE CONTROLLER – ACCOUNTING
CENTRAL SHOPS
ELECTRONICS
CONSTRUCTION PROJECT COORDINATOR
OFFICE OF PUBLIC AFFAIRS
ENVIRONMENT, SAFETY AND HEALTH
PLANT SYSTEMS
PROCUREMENT – 2
PROPERTY MANAGEMENT
QUALITY ASSURANCE
SITE MANAGER'S OFFICE – AW
SPECIAL MATERIALS & SERVICES
BUDGET OFFICE – 3
J. R. Shelton — R. W. Benedict
K. M. Goff — B. J. Woelfer
S. P. Henslee — M. A. Williamson
H. F. McFarlane — J. J. Laidler
W. Deitrich — J. Roglans

REVISION LOG

NO.	DATE	TOTAL AUTHORIZED
Original	12/12/02	$75,000

ANL-48A (1-88)

WORK PROJECT REQUEST

9. Project Title: Strategic Analysis of Recycle Technologies Deployment

SUMMARY OF ESTIMATES

Effort	$ 70,000
M&S	$ 5,000
Total	$ 75,000

Cost Centers charging Effort

121
123
107

10. **JUSTIFICATION** (Explain program or service need, the inadequacy of present facilities, urgency and programmatic consequences if project is not authorized.)

The National Energy Policy recommends development of advanced nuclear fuel cycles. This position was reinforced during the May 2002 summit meeting in Moscow in which the President announced that Russia and the U.S. would work together in developing an advanced proliferation-resistant nuclear fuel cycle. Both the Advanced Fuel Cycle Initiative (AFCI) and the Generation IV Program within DOE-NE support recycle of spent nuclear fuel. New recycle technologies are being pursued to create more proliferation resistant processes and to produce fuels that can be used for the destruction of significant quantities of plutonium in existing spent fuel.

The advanced nuclear fuel cycle initiative is expected to set the course for Argonne's nuclear energy program for the next decade. The deployment plans for a recycle facility would focus that work and provide direction for a national effort.

Continue on separate page(s) as necessary

11. **DIVISIONAL REVIEW AND APPROVAL**

	Signature	Date
1) Feasibility and/or Justification	Stephen D. Johnson for H. McFarlane	12/9/02
2) Adequacy of Budget	Jeff R. Stetton	12/9/02
3) Division Director's Approval	Stephen D. Johnson for H. McFarlane	12/9/02

ANL-48A (11-82)

ARGONNE NATIONAL LABORATORY
WORK PROJECT AUTHORIZATION

TRANS. CODE	EFFECTIVE DATE	PROJECT CHARGE CODE NO.	SUB.	COST CENTER	COST ACCOUNT
A	12/13/02	03363			XXX

PROJECT TITLE (LIMIT TO 30 SPACES)	LOCATION BLDG.	ROOM	START DESIGN	START CONSTRUCTION	COMPLETE	LDRD/CRADA SHORT TITLE	LDRD PROPOSAL #
Remote Fuel Fab Technology			10/01/02		09/30/03		2003-333-N0

BRIEF PHYSICAL DESCRIPTION AND SCOPE OF WORK

The purpose of the proposed project is to quantify fuel fabrication costs associated with specific generation IV fuel cycles and to identify gaps that exist in fuel fabrication technology for these cycles. This project will also focus on identifying features that enhance the proliferation resistance of the various generation IV fuel fabrication options.

DIRECTION OF WORK CCTR	NAME	COST CONTROL CCTR	NAME	INTERNAL REQUEST AUTHORITY NAME	$
122	M. K. Meyer	122	T. A. Carlson	D. L. Porter	Full

USER REPRESENTATIVE CCTR	NAME	DIV. DIRECTOR CCTR	NAME	INTERNAL REQUEST AUTHORITY NAME	$
122	P. Finck	122	T. A. Carlson	T. A. Carlson	Full

NOTE: THE DIVISION DIRECTOR IS AUTHORIZED TO APPROVE ANY REQUISITION WITHIN THE PROJECT LIMITS

TITLE OF PROGRAM ACTIVITY	% TO CODE	PROJECT DISTRIBUTION CODE	AMOUNT AUTHORIZED	AMOUNT AUTHORIZED	REV. NO.
Laboratory General Expense LDRD	100	[redacted]	$225,000		
			TYPE OF FUNDS: OPERATING COST, CONSTRUCTION, INVENTORY	TYPE OF FUNDS: EQUIPMENT	

MASTER PROJECT CODES PRIMARY	SECONDARY		IDENT.	ANALYSIS CATEGORY	PROPERTY CONTROL CCTR	NAME
[redacted]						

PURCHASE ORDERS AND SERVICE REQUESTS PREVIOUSLY ISSUED FOR THIS WORK: ☐ NONE ☐ LIST ATTACHED

DOE PROJECT NO.	DOE DIRECTIVE NO.	DIRECT. MODIF. NO.	DATE	DIRECTIVE AMOUNT	IS DOE APPROVAL REQUIRED? ☐ YES ☐ NO
					ALD: J. I. Sackett / PM: H. P. Planchon

REMARKS

Proposal Number 2003-333-N0, Title: Research on Remote Fuel Fabrication Technology for Generation IV Fuel Cycles, OSTI Number: 050700

The funding for this project has been reviewed and approved by the Laboratory Director. No commitment or expenditure may be made against this project in excess of this level without the Laboratory Director's approval. An initial authorization at the 100% level has been approved. This project has been reviewed with respect to all applicable regulations under NEPA, human and animal subject research, and environmental health and safety.

Please establish the following tasks and funding levels: (1) ENT Division 03____-01-121 $38,000
(2) CMT Division 03____-01-107 $56,000

* D. C. Crawford has full request authority.
* M. K. Meyer has $10,000 internal request authority.

REVIEWED BY (NOT FOR DIVISIONAL USE) INIT.	DATE	INIT.	DATE
DCW	12/19		
[redacted]	12/19		

PROJECT AUTHORIZED BY [redacted] AMOUNT $225,000

DISTRIBUTION

DIVISION AUTHORIZED
ACCOUNTING – COST SECTION
ASST. CHIEF FINANCIAL OFFICER
CENTRAL SHOPS
ELECTRONICS
CONSTRUCTION PROJECT COORDINATOR
OFFICE OF PUBLIC AFFAIRS
PLANT SYSTEMS
PROCUREMENT
PROPERTY MANAGEMENT
QUALITY ASSURANCE
SITE MANAGER'S OFFICE – AW
SPECIAL MATERIALS & SERVICES
BUDGET OFFICE
T. A. Carlson
D. C. Crawford
P. Finck
D. L. Porter
H. P. Planchon
B. J. Woelfel
M. K. Meyer

REVISION LOG

NO.	DATE	TOTAL AUTHORIZED
Original	12/13/02	$225,000

ANL-48A (8-01)

WORK PROJECT REQUEST

PROJECT TITLE Remote Fuel Fab Technology

10. **SUMMARY OF ESTIMATES**

Effort	$205,000
M&S	20,000
Total	$225,000

Cost centers charging effort: cc 122, cc 121, cc 107

11. **JUSTIFICATION** (Explain program or service need, the inadequacy of present facilities, urgency and programmatic consequences if project is not authorized.)

One of the key process functions to be performed in any fuel cycle is fuel fabrication. Some proposed generation IV reactor technologies require novel fuel. Some of these novel fuels require large advances in fuel fabrication and process technology.

This work will assess fuel and fuel fabrication options that are proposed under ANL initiatives. Evaluation of fabrication options will aid in the formulation of Argonne's Advanced Nuclear Fuel Cycle strategy by putting capital and fuel production costs on a quantitative basis, allowing differentiation between the costs of recently proposed fuel cycle strategies. Fuel fabrication process layouts will aid in preconceptual work for a fuel recycle facility. Differences in proliferation resistance relating to processing of specific fuel types will be identified. The results of the analysis will aid ANL in selection of preferred technology options for an advanced nuclear fuel cycle. This strategy will result in a self-consistent and carefully justified choice of an optimum fuel cycle and the potential for funding of a larger fuel cycle project.

Continue On Separate Page(s) As Necessary

12. **DIVISIONAL REVIEW AND APPROVAL**

	Signature	Date
1) Feasibility and/or Justification	Mitchell K. Meyer	12/11/02
2) Adequacy of Budget	Teresa Carson	12/11/02
3) Division Director's Approval	D. L. Porter for H.P.P.	12·11·02

ARGONNE NATIONAL LABORATORY
WORK PROJECT AUTHORIZATION

TRANS. CODE	EFFECTIVE DATE	PROJECT CHARGE CODE NO.	SUB.	COST CENTER	COST ACCOUNT
					XXX

PROJECT TITLE (LIMIT TO 30 SPACES)	LOCATION BLDG.	ROOM	START DESIGN	START CONSTRUCTION	COMPLETE	LDRD/CRADA SHORT TITLE	LDRD PROPOSAL #
Eval Core Matls Gas-Cooled Rx			10/01/02		9/30/03		2003-276-N0

3. BRIEF PHYSICAL DESCRIPTION AND SCOPE OF WORK

The purpose of the proposed project is to perform a critical review of materials for the gas-cooled fast spectrum reactor (GFR) concept to identify likely candidates and the data needs.

4.	DIRECTION OF WORK C/CTR	NAME	COST CONTROL C/CTR	NAME	INTERNAL REQUEST AUTHORITY NAME	$
	[redacted]		[redacted]		D. L. Porter	Full
5.	USER REPRESENTATIVE C/CTR	NAME	DIV. DIRECTOR C/CTR	NAME	INTERNAL REQUEST AUTHORITY NAME	$
	[redacted]	H. P. Planchon	[redacted]	H. P. Planchon	T. A. Carlson	Full

NOTE: THE DIVISION DIRECTOR IS AUTHORIZED TO APPROVE ANY REQUISITION WITHIN THE PROJECT LIMITS

6.	TITLE OF PROGRAM ACTIVITY	% TO CODE	PROJECT DISTRIBUTION CODE	AMOUNT AUTHORIZED	AMOUNT AUTHORIZED	REV NO.
	Laboratory General Expense LDRD	[redacted]	[redacted]	[redacted]		

TYPE OF FUNDS: OPERATING COST / CONSTRUCTION / INVENTORY — TYPE OF FUNDS: EQUIPMENT

7.	MASTER PROJECT CODES PRIMARY	SECONDARY		IDENT.	ANALYSIS CATEGORY	PROPERTY CONTROL C/CTR	NAME
	[redacted]						

PURCHASE ORDERS AND SERVICE REQUESTS PREVIOUSLY ISSUED FOR THIS WORK: ☐ NONE ☐ LIST ATTACHED

8.	DOE PROJECT NO.	DOE DIRECTIVE NO.	DIRECT. MODIF. NO.	DATE	DIRECTIVE AMOUNT	IS DOE APPROVAL REQUIRED? ☐ YES ☐ NO
	[redacted]					ALD: J. I. Sackett / PM: H. P. Planchon

9. REMARKS

Proposal Number 2003-276-N0, Title: Evaluation of Core Materials for Gas-Cooled Fast Spectrum Reactors, OSTI Number: 220200

The funding for this project has been reviewed and approved by the Laboratory Director. No commitment or expenditure may be made against this project in excess of this level without the Laboratory Director's approval. An initial authorization at the 100% level has been approved. This project has been reviewed with respect to all applicable regulations under NEPA, human and animal subject research, and environmental health and safety.

* D. C. Crawford has full request authority.
* T. R. Allen has $10,000 internal request authority.

REVIEWED BY (NOT FOR DIVISIONAL USE)	INIT.	DATE	INIT.	DATE
	PW	12/9		
	[redacted]	12/19		

PROJECT AUTHORIZED BY [redacted] AMOUNT $50,000

DISTRIBUTION

DIVISION AUTHORIZED
ACCOUNTING – COST SECTION
ASST. CHIEF FINANCIAL OFFICER
CENTRAL SHOPS
ELECTRONICS
CONSTRUCTION PROJECT COORDINATOR
OFFICE OF PUBLIC AFFAIRS
PLANT SYSTEMS
PROCUREMENT
PROPERTY MANAGEMENT
QUALITY ASSURANCE
SITE MANAGER'S OFFICE – AW
SPECIAL MATERIALS & SERVICES
BUDGET OFFICE
T. A. Carlson
D. C. Crawford
P. Finck
D. L. Porter
H. P. Planchon
B. J. Woelfer
T. R. Allen

REVISION LOG

NO.	DATE	TOTAL AUTHORIZED
Original	12/13/02	$50,000

ANL-48A (5-01)

WORK PROJECT REQUEST

PROJECT TITLE: Eval. Core Matls. Gas Cooled Reactor

10. SUMMARY OF ESTIMATES

Effort	$50,000
M&S	0
Total	$50,000

Cost centers charging effort = 122

11. JUSTIFICATION (Explain program or service need, the inadequacy of present facilities, urgency and programmatic consequences if project is not authorized.)

The gas-cooled fast spectrum reactor (GFR) demands high temperature materials with resistance to fast spectrum radiation for use as core internals. Carbon-base materials that were utilized for thermal spectrum gas-cooled reactors might not be appropriate because of their strong moderation of neutrons. Therefore, any materials proposed for the GFR will be chosen from classes of materials for which little to no experience exists relative to reactor service. This project will perform a critical review of materials for the GFR concept to identify likely candidates and the data needs. This project will be of benefit in identifying the scope of the research challenge for GFR materials.

Continue On Separate Page(s) As Necessary

12. DIVISIONAL REVIEW AND APPROVAL

	Signature	Date
1) Feasibility and/or Justification	for T.R. Allen	12/11/02
2) Adequacy of Budget		12/11/02
3) Division Director's Approval	D.L. Porter for H.P.P.	12-11-02

ARGONNE NATIONAL LABORATORY
WORK PROJECT AUTHORIZATION

ANFC

TRANS. CODE	EFFECTIVE DATE	PROJECT CHARGE CODE NO.	SUB.	COST CENTER	COST ACCOUNT
					XXX

1. PROJECT TITLE (LIMIT TO 30 SPACES): Fuels for Gas-Cooled Fast Reactors

LOCATION BLDG.	ROOM	START DESIGN	START CONSTRUCTION	COMPLETE	LDRD/CRADA SHORT TITLE	LDRD PROPOSAL #
						2003-273-N0

2.

3. BRIEF PHYSICAL DESCRIPTION AND SCOPE OF WORK

The purpose of the proposed project is to identify the most likely fuels for gas-cooled fast reactors and evaluate their potential in terms of fabricability, fuel performance, and safety under normal and accident conditions.

4. DIRECTION OF WORK C/CTR	NAME	COST CONTROL C/CTR	NAME	INTERNAL REQUEST AUTHORITY NAME	$
				D. L. Porter	Full
5. USER REPRESENTATIVE C/CTR	**NAME**	**DIV. DIRECTOR C/CTR**	**NAME**	**INTERNAL REQUEST AUTHORITY NAME**	**$**
				T. A. Carlson	Full

NOTE: THE DIVISION DIRECTOR IS AUTHORIZED TO APPROVE ANY REQUISITION WITHIN THE PROJECT LIMITS

6. TITLE OF PROGRAM ACTIVITY	% TO CODE	PROJECT DISTRIBUTION CODE	AMOUNT AUTHORIZED	AMOUNT AUTHORIZED	REV NO.
~~Laboratory General Expense~~ LDRD			TYPE OF FUNDS: OPERATING COST / CONSTRUCTION / INVENTORY	TYPE OF FUNDS: EQUIPMENT	

7. MASTER PROJECT CODES PRIMARY	SECONDARY		IDENT.	ANALYSIS CATEGORY	PROPERTY CONTROL C/CTR	NAME	PURCHASE ORDERS AND SERVICE REQUESTS PREVIOUSLY ISSUED FOR THIS WORK
							☐ NONE ☐ LIST ATTACHED

8. DOE PROJECT NO.	DOE DIRECTIVE NO.	DIRECT. MODIF. NO.	DATE	DIRECTIVE AMOUNT	IS DOE APPROVAL REQUIRED? ☐ YES ☐ NO
					ALD: J. I. Sackett / PM: H. P. Planchon

9. REMARKS

Proposal Number 2003-273-N0, Title: Development of Fuels for Fast Spectrum Gas-Cooled Reactors, OSTI Number: 220300

The funding for this project has been reviewed and approved by the Laboratory Director. No commitment or expenditure may be made against this project in excess of this level without the Laboratory Director's approval. An initial authorization at the 100% level has been approved. This project has been reviewed with respect to all applicable regulations under NEPA, human and animal subject research, and environmental health and safety.

Please establish the following tasks and funding levels: (1) RAE Division 03_____-01-123 $18,000

* D. C. Crawford has full request authority.
* T. R. Allen has $10,000 internal request authority.

REVIEWED BY (NOT FOR DIVISIONAL USE) INIT.	DATE	INIT.	DATE
pw	1-13		

PROJECT AUTHORIZED BY [signature] AMOUNT $75,000

DISTRIBUTION

DIVISION AUTHORIZED
ACCOUNTING – COST SECTION
ASST. CHIEF FINANCIAL OFFICER
CENTRAL SHOPS
ELECTRONICS
CONSTRUCTION PROJECT COORDINATOR
OFFICE OF PUBLIC AFFAIRS
PLANT SYSTEMS
PROCUREMENT
PROPERTY MANAGEMENT
QUALITY ASSURANCE
SITE MANAGER'S OFFICE – AW
SPECIAL MATERIALS & SERVICES
BUDGET OFFICE
T. A. Carlson
D. C. Crawford
P. Finck
D. L. Porter
H. P. Planchon
B. J. Woelfer
M. K. Meyer

REVISION LOG

NO.	DATE	TOTAL AUTHORIZED
Original	1/14/03	$75,000

ANL-48A (8-01)

WORK PROJECT REQUEST

PROJECT TITLE Fuel Development Gas Cooled Reactor

10. SUMMARY OF ESTIMATES

Effort	$70,000
M&S	5,000
Total	$75,000

Cost centers charging effort: cc122, cc 123

11. JUSTIFICATION (Explain program or service need, the inadequacy of present facilities, urgency and programmatic consequences if project is not authorized.)

This project supports the Laboratory's strategic initiative in the area of Advanced Nuclear Fuel Cycle Technology. Fast spectrum gas reactors are a promising future application of nuclear technology due to the potential for high fuel utilization and waste transmutation. Development of fuels for such a system is challenging due to the high temperatures required for efficient gas turbine power cycles and very high temperatures which could occur during a rapid depressurization accident with concurrent loss of electric power. The focus of this proposal is on the development of fuels compatible with a closed fuel cycle and a passively safe reactor design.

Developing this technology benefits ANL by enhancing the Laboratory's capability to develop and test complete advanced fuel cycles for a sustainable nuclear future. Successful completion allows advancement of closed fuel cycle technology. Fuels developed may have application to liquid metal cooled systems and could enhance the safety of such systems by providing a wider margin to fuel melting. The primary customer and beneficiary in the short term is the DOE Generation IV International Initiative. Longer-term interest should then develop from the commercial power sector.

Continue On Separate Page(s) As Necessary

12. DIVISIONAL REVIEW AND APPROVAL

	Signature	Date
1) Feasibility and/or Justification	Mitchell C Meyer	12/11/02
2) Adequacy of Budget	Roger Cahn	12/Mar
3) Division Director's Approval	D. L. Porter for A.L.P.	12.11.02

ANL-48A (6-01)